FAQ
Functional Safety Engineer (TÜV Rheinland)
Safety Instrumented Systems (SIS) Training
TÜV Rheinland Functional Safety Program

1. **What is included in the course?**
   The cost of the course is 1900 GBR. This includes the course, the final exam, certificate and personal ID number issued by TÜV Rheinland, training handouts and student exercises, refreshments and lunch. This does not include accommodation, dinners, or transportation. Individual customized courses can be organized on request.

2. **What are the eligibility requirements for the course?**
   Participants have to attend a complete training, must fulfill the defined requirements and have to pass the exam, which takes place at the end of each training. If all is fulfilled, they will obtain the worldwide-acknowledged "FS Engineer (TÜV Rheinland)" certificate indicating an individual ID number.

   In order to obtain the FS Engineer (TÜV Rheinland) certificate the following must be fulfilled:

   1. Proof of at least 3 years of practical business experience in any application are of Functional Safety;
   2. Engineer degree of a University or University of Applied Science, Polytechnic etc. (Bachelor's, Master's or other) or for SIS and PH&RA trainings only: equivalent engineer level responsibilities status confirmed by employer in a reference letter.
   3. Participation in the complete training;
   4. Passing of exam.

3. **Can I attend the training without fulfilling the requirements?**
   Persons, who do not have the according business experience, may participate in the training as well as the exam. If they pass the exam successfully, the FS Engineer (TÜV Rheinland) certificate will be issued to them as soon as the necessary 3 years of business experience in the area of functional safety are achieved. Participating in the exam only will not grant issue of the FS Engineer (TÜV Rheinland) certificate.

4. **What kind of certificate do I receive?**
   The FS Engineer (TÜV Rheinland) certificate will be send in electronic form as pdf-file by email to each certificate holder.

   The FS Engineer (TÜV Rheinland) certificate confirms that:

   - the person has participated continuously in a training of the TÜV Rheinland Functional Safety Program concerning a specified topic,
   - has successfully passed the final exam of this training,
   - has obtained specified knowledge, which he can integrate to his daily work,
   - has obtained the title "FS Engineer (TÜV Rheinland)" concerning the specified topic within the TÜV Rheinland Functional Safety Program.

5. **How long is the FS Engineer (TÜV Rheinland) certificate valid and what is about an extension?**

    The certificate is valid for 5 years and can be extended by another 5 years by TÜV Rheinland who charge an extension fee. The holder of this certificate will be contacted by TÜV Rheinland directly by email. Please make sure, that TÜV Rheinland has your current company email address.

    In order to extend the validity of the certificate the following documents are required by TÜV Rheinland and shall be forwarded by email:

    *   an official letter from his employer or from a customer, in which their current and continuous work in the SIS area of certification is described and/or confirmed;
    *   a form sheet filled in with all necessary information describing projects which have been carried out during the last 5 years of his professional life describing his experience in functional safety.

6. **What is required for the exam?**
    The exam is a total of 81 questions: 60 being multiple choice and 21 open answer questions. The exam is closed book and you will have a time limit of 4 hours. To pass, you have to receive a minimum score of 75%.

7. **What is the procedure to retake the test if I do not pass?**
    HIMA allows the student to retake the exam at any location on the HIMA training schedule. (Retake fees apply)

8. **Why should I take the FS Engineer (TÜV Rheinland) training with HIMA?**
    HIMA was one of the first course providers and has trained more than 3000 FS Engineers over the last 15 years.

    The HIMA trainers are experienced TÜV Functional Safety Experts (TÜV Rheinland) and have been working directly in the area of process safety for 20 years or longer. They have practical experience with safety systems and various engineering projects which enriches the course with real-life case studies and examples.

    The HIMA Group is the world's leading independent provider of smart safety solutions for industrial applications. With more than 35,000 installed TÜV-certified safety systems worldwide, HIMA qualifies as the technology leader in this sector. Its expert engineers develop customized solutions that help increase safety, cyber security and profitability of the world's largest oil, gas, chemical, and energy-producing plants.

    TÜV Rheinland is the originator of the FS Engineer training and in 2020 more than 14.000 certified FS Engineer (TÜV Rheinland) are belonging to this exclusive club of certified safety functional experts. The certification is well-known and internationally accepted in the process industry. That's why HIMA decided to offer this training.

9. **What will I learn?**

- **Introduction to Functional Safety**
  Safety standards, basic terminology (human error, systematic error, common cause, SIS, SIF, SIL, process safety time etc.), Independent Protection Layers (IPL)

- **Functional safety management**
  Lifecycle concept, documentation requirements, safety plan, verification, validation, assessments and audits, requirements for suppliers, management of change, competency

- **Hazard & Risk Analysis**
  Hazard identification, hazard analysis, risk reduction, safety function definition using FTA, HAZOP, LOPA, risk matrix, risk graph, FMEA.

- **Safety Requirement Specification**
  Verbal expressed SIF, content of end-user SRS, SRS Review

- **SIS Hardware Design**
  - Random hardware failures, diagnose, proof test
  - Hardware concepts for SIS (energize versus de-energize, mode of operation, human capability, independency from BPCS, PFD, SIL, Security)
  - Hardware concepts for subsystems (redundancy, diversity, voting, hardware fault tolerance, safe failure fraction, common cause, process interface type A/B, architectural constraints)
  - Selection of devices for SIS (IEC 61508 compliant or Prior Use)
  - Reliability analysis, safety data, SIF/SIL verification

- **Software design**
  - SIS software design - Application Program (AP)
  - AP lifecycle and V-model
  - AP requirement specification
  - AP design
  - AP verification and validation
  - AP change and modification

- **SIS Security**
  Safety versus security, security risk assessment, typical security measures for SIS,

- **Operation and maintenance**
  Procedures, training, repair and spare parts, bypass and maintenance override, proof test execution, inspection

For further information please visit our website www.hima.com or get in contact with our training departments:

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More information about HIMA UK:

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